

the  
world's  
most  
versatile  
**240  
IPS**



**ELECTRO  
SOUND  
6000**

tape  
duplicating  
system...

**32:1**



Distributed by: AUDIOMATIC CORPORATION, 237 West 54th Street, New York, N. Y. 10019 (212) 582-4812, Cable: AUDIOMATIC



# ...a full program to put you in the tape duplicating business

We offer a service tailored to your requirements. For a plant in the formative stage, we can carry your order through from its receipt to the completion of a fully-operating plant using the superlative Electro Sound 6000 System. On the other hand, we invite requests from established business for individual components of a duplicating system.

We also provide, for customers purchasing a system with five or more slaves, a training program which will fully prepare your personnel to operate that plant efficiently and effectively.

We design and manufacture all equipment necessary for a tape duplicating plant and are the only single source supplier who can offer customers a full line of basic equipment of its own manufacture. We produce the duplicating equipment itself, as well as winders, quality control equipment, playback equipment and mastering devices, and accessories required for a fully-operating plant.



# what the ES 6000 series offers you

## HIGH QUALITY AT TWICE THE SPEED

In the series 6000, Electro Sound introduces a new concept in the high speed duplication of magnetic tape. The series 6000 offers the tape duplicator who has confined plant space facilities, but who demands unusually high output... a 240 IPS, high-speed tape duplicating system. This 240 IPS, high output, 32:1 ratio system has the same rugged reliability, the same simple operation, the same quick changeover feature from one tape configuration to another, as our Series 4000 duplicator. In the series 6000 is the same superior design and superlative performance which has made Electro Sound tape duplicating systems the recognized standard of the industry.

## INCREASED PRODUCTION

Tape speed is double that formerly used. A significant increase in production capability is thus possible. Changeover from one tape configuration to another can be accomplished in a maximum of 2 minutes per slave, and the master can be loaded in 15 seconds if an Electro Sound loading rack is employed. Production estimates included herein are conservative, based on experience in actual operation of Electro Sound equipment in plants throughout the world.

## STATE-OF-THE-ART DESIGN

State-of-the-art techniques in circuit design are employed to provide excellent frequency response and high signal-to-noise ratio. A modular approach, using plug-in electronic assemblies, is utilized to facilitate alignment and maintenance procedures. For example, all alignment controls are accessible from the front of the rack or consoles.

## DEPENDABLE OPERATION

Despite the high-speed transports and sophisticated electronic components, the Series 6000 is an extremely rugged system, designed to produce high quality tapes hour after hour, day after day, week after week. Dependable operation with minimum maintenance are inherent properties which can be achieved only by a manufacturer with the experience and capabilities which Electro Sound possesses.

## FEATURES

- Tape speeds of 240 IPS at master, 60 and 120 IPS at slaves.
- Excellent frequency response, low noise.
- Modular, plug-in record and reproduce amplifiers, housed eight to a tray.
- Crystal-controlled bias generator with 2 MHz frequency.
- Meter and visual warning on bias voltage.
- Separate bias buffer amplifiers in each slave.
- Preamplifiers adjacent to reproduce heads to prevent high-frequency loss in head leads.
- For easy access, all adjustments made from front of racks or consoles.
- Plug-in heads.
- Scrape flutter idlers built into head assemblies of both master and slaves to practically eliminate tape scrape flutter.
- Convertible tape guides on slaves for  $\frac{1}{4}$  inch and cassette tape.
- Convertible tape guides on master for  $\frac{1}{2}$  and 1 inch tapes.
- Constant tension on take-up and supply.
- Disc brakes on reel drive motors for positive tape control.
- Plug-in equalizers.
- Cue tone electronically injected.
- Continuous Loop Assembly, over 2000 feet of 1 Mil. tape capacity.
- Fully automatic operation for reel-to-reel duplication.
- Heads for "Quad eight" available.
- Dolby noise reduction system can be used with the Electro Sound 6000 and 4000 systems.

# what the system does

Electro Sound Series 6000 systems are truly versatile. They can be quickly changed by relatively unskilled operators to produce cartridges at  $3\frac{1}{4}$  IPS, or cassettes at  $1\frac{1}{8}$  IPS. Changeover between these configurations can be achieved in approximately two minutes per slave assembly.

Master tape transports are available for  $\frac{1}{2}$  inch tape, 1 inch tape, or convertible to handle both  $\frac{1}{2}$  or 1 inch tape (they are also available on special order for  $\frac{1}{4}$  inch tape). Slave transports will handle both  $\frac{1}{4}$  inch or .150 inch tape. Plug-in heads for the master and slave transports can be quickly changed by the operator.

Master tapes recorded at either  $7\frac{1}{2}$  IPS or 15 IPS, with NAB pre-emphasis,\* can be simultaneously duplicated on up to 10 slave assemblies. The copies can be either on  $\frac{1}{4}$  inch tape for cartridges or on .150 inch tape for cassettes. The master reproducer operates at a tape speed of 240 IPS while the slave recorders provide two speeds of 60 and 120 IPS.

Such genuine versatility allows schedules to be set by the dictates of production requirements, not by equipment limitations.

Another important feature is the inclusion of scrape flutter idlers (rotary tape guides) on the head assemblies of both the master and slaves. This practically eliminates tape scrape flutter as a factor in the duplicating process.

\*Also available for other pre-emphasis curves, such as CCIR, etc.

## APPROXIMATE CAPACITY PER SLAVE

Electro Sound 6000 (Using continuous loop with one operator)

8 track cartridges	1300 units per eight-hour shift
Cassettes (Philips type)	650 units per eight-hour shift

These production estimates are based on a program content per cartridge or cassette equal to one long-playing album of popular recording material. They are also based on production experience, using operators with minimal skills and average dexterity, gained in duplicating plants using Electro Sound equipment. In our opinion, they are easily attainable and in many cases will be exceeded.

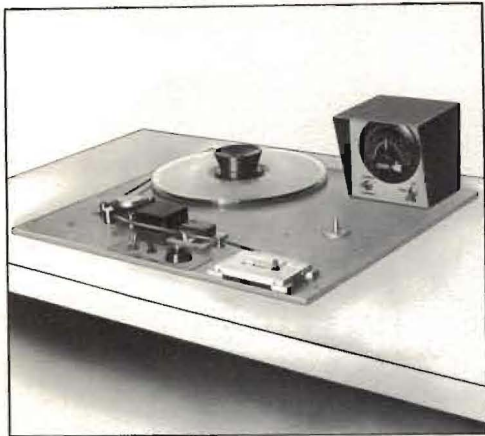
However, other manufacturers sometimes quote production figures based on theoretical calculations and ideal conditions which are not attainable under any circumstances. To provide a foundation for comparison, we include such computations.

### Theoretical Capacity per Slave

8 track cartridges	1680 units per eight-hour shift
Cassettes (Philips type)	840 units per eight-hour shift



## cartridge & cassette tape winding unit



### MODEL 100-48C

The Model 100-48C is the world's most widely used tape winding unit. It provides facilities for loading magnetic tape on cartridge hubs or into cassettes at a speed of 120 ips. It will wind from a reel of tape up to 14" in diameter to the hub of a 4 or 8 track cartridge or into a pre-assembled, pre-leadered (Philips type) cassette. The Model 100-48C is thus a valuable accessory for use with high speed duplicating equipment, such as the Electro Sound Model 6000 system, or in installations where blank tape is loaded into cartridges or cassettes.

### FEATURES

- A subsonic cue signal is used to separate elements on the reel
- A synchronous timer is employed when winding predetermined lengths of blank tape
- Automatically cuts the tape at the end of the winding cycle
- Cuts the tape at a 45-degree angle ready for splices
- Winds cassettes up to C-120
- Synchronous drive at 120 ips
- Reversible guides for 1/4" or .150" tape

- Simple one control operation requiring non-skilled labor
- Instantaneous changeover between cartridge and cassette
- Professional tape-transport components and design, for years of trouble-free operation
- Four motors are used in the tape winder — a supply motor, a capstan motor, a cassette motor, and a cartridge motor

### SPECIFICATIONS

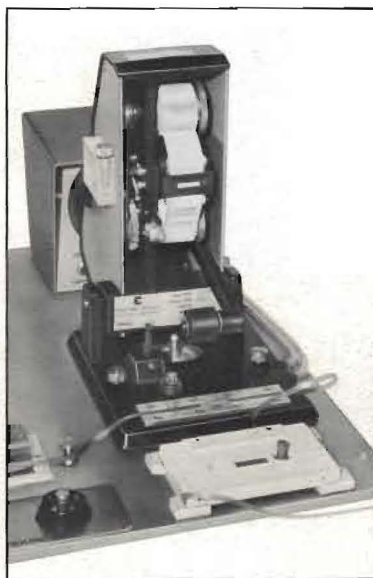
Tape speed (winding speed)	120 ips synchronous (60 Hz) 100 ips synchronous (50 Hz)
Supply reel size	up to 14" diameter
Cue tone	5-10 (Hz) for 1 7/8 ips copy 10-20 (Hz) for 3 3/4 ips copy
Duty	Continuous
Operating controls	Start pushbutton
Power requirements	105-125 volts, 50 or 60 Hz *
Power consumption	Less than 100 watts
Size	19" wide, 17 1/2" high, 7" deep below panel
Weight (shipping)	57 lbs.
*220 volt model also available.	

## automatic tape splicer

Splicing magnetic tape manually is a time consuming, and sometimes unreliable, method of accomplishing this necessary function. The Electro Sound Model 200 Automatic Tape Splicer performs the task quickly and dependably, and thus is a valuable adjunct in the mass production of magnetic tapes for cassettes and cartridges.

Automatic Tape Slicers are available in two versions — one for use with 1/4-inch tape and the other with .150-inch tape. Those for cassette type tape (.150 inch) can be mounted directly on the Electro Sound Model 100-48C Tape Winder. It is recommended that 1/4-inch tape splicers be table mounted adjacent to the cartridge assembly area.

The assembly consists basically of the splicer mechanism, which operates in conjunction with a power supply and vacuum system mounted in a small housing. The tape to be spliced is held by the vacuum in a perforated splicing block on the mechanism. There it is manually cut at the proper 45° angle. Tapes recorded on ES100-48C are already cut at 45° ready for splicing. The mechanism is then lowered to contact the tape and the splice is made automatically.



Automatic Tape Splicer, Model 200-02 for .150 tape.



Automatic Tape Splicer, Model 200-01 for .25 tape.



## PERFORMANCE CHARACTERISTICS Electro Sound 6000

Tape Speed	Master: 240 IPS Slave: 60 and 120 IPS
Frequency Response Capability	1 7/8 IPS duplicates from 7 1/2 IPS NAB Masters: 40 to 12,000 Hz, $\pm 2$ dB. 3 3/4 IPS duplicates from 7 1/2 IPS NAB Masters: 40 to 12,000 Hz, $\pm 2$ dB.
Reel Size Capacity	Up to 14-inch diameter reels on take-up and supply turntables for both master and slave.
Wow and Flutter	Will not contribute more than 0.1% wow and flutter in duplicates, measuring all components between 0.5 and 200 Hz. At any duplicating speed measured in accordance with ASA standards, Z57.1-1954.

## RELATED EQUIPMENT



# components of the system

## THE BASIC SYSTEM

High-speed master reproduce equipment, with interchangeable 4 and 8 track heads, switchable equalization, associated electronics, and continuous loop assembly.

High-speed slave duplicating transports (up to 10) with interchangeable cartridge and cassette heads and bias buffer amplifiers. Only ferrite heads are used on the slaves.

Automatic tape control unit for reel-to-reel production. Automatically starts the slaves at a predetermined time after the master is started, and applies bias after the slaves reach operating speed. At the end of the master tape, the slaves are automatically stopped and the master is rewound and cued in proper position for the succeeding cycle.

## RELATED EQUIPMENT

Loading Rack with Loop Box.  
Master tape recorder and associated electronics, Model 5000.  
Quality control reproducer, Model 5100.  
Cartridge/Cassette tape winding units, Model 100-48C.  
Automatic Tape Splicer, Model 200-01 for .25 tape.  
Automatic Tape Splicer, Model 200-02 for .150 tape.  
Slave Adjustment Calibrator, Model 490.  
2-track professional tape playback machine.  
Automatic tape cleaner.  
Cue-tone injector.  
Capstan idlers with interchangeable tires.

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## STANDARDS AND OPTIONS

The system can operate with any number of slaves from one to ten. Cartridge and cassette heads are interchangeable in the equipment. The heads and printed wiring boards (which are pre-adjusted to provide correct bias, signal level, and equalization) are the only components which have to be changed in converting from one configuration to another. The customer purchases only those heads and boards needed to meet his production requirements.

Continuous loop assembly (over 2000 foot tape capacity) is standard equipment. Its use approximately triples the output of a system without continuous loop.

# installation & training by the manufacturer

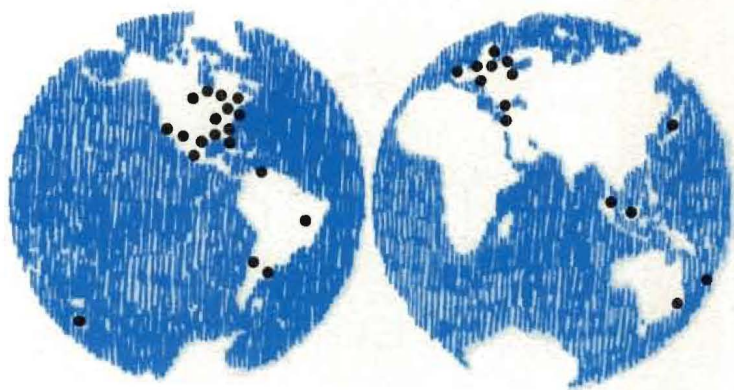
Electro Sound is the world's largest producer of tape duplicating equipment. The company is a subsidiary of Viewlex, Inc., as is A & B Duplicators, one of the oldest and largest tape duplicating plants in the world. The original equipment was developed to meet A & B's requirements and over the years it has been modified and refined to attain the highest level of performance and reliability under the real pressures of high volume, round-the-clock production. The Series 6000 is the culmination of that effort. Production training is provided in the A & B Duplicators' plant under actual production conditions.



## ELECTRO SOUND . . .

**the only manufacturer  
who can assume  
the responsibility for all  
of your tape duplicating needs.**

### USERS OF ELECTRO SOUND EQUIPMENT



Our equipment has been selected by industrial leaders throughout the world, many of whom have reordered additional equipment to expand their operations.

A & B DUPLICATORS LTD., New York  
A & E INDUSTRIES, California  
AMERICAN RECORD PRESSING, Michigan  
AMERICAN SOUND CORP., Michigan  
AMPEX CORP., Alabama  
AMPEX CORP., Illinois  
AMPEX INTERNATIONAL OPERATION,  
California  
AMPEX OF CANADA, Canada  
AMPEX, S.A., Belgium  
APG GRAVACOES, S.A., Brazil  
AUDIO ART, Illinois  
AUDIO MAGNETICS, California  
AUDIO PHYSICS, California  
AUDIOTAPE CORP., Connecticut  
A-V RESEARCH, New Jersey  
AVERY ELKINS, New York  
BASF, Massachusetts  
C. BERTELSMANN VERLAG, Germany  
CAPITOL RECORDS, California  
CAPITOR RECORDS, Canada  
CARTRIDGE CONTROL CORP., Georgia  
CASSETTE CARTRIDGE CORP., New York  
CASSETTE COMMUNICATIONS, New York  
CERTRON CORP., California  
CIA BRASILEIRA DE DISCOS, Brazil  
CINRAM LTD., Canada  
COLUMBIA RECORDS, Indiana  
COLUMBIA RECORDS, Canada  
COLUMBIA RECORDS, England  
COLUMBIA GRAPHOPHONE, Greece  
CUE RECORDING, New York  
CUSTOM MUSIC CORP., Missouri  
DATA TECHNOLOGY, California  
DECCA MANUFACTURING, New York  
DECCA RECORDS, England  
DERAM LIMITED, Canada

DEUTSCHE GRAMMOPHON, Germany  
DISKMAKERS INC., Pennsylvania  
DISCOS CORO, S.A., Mexico  
DOUBLE SIXTEEN CO., Illinois  
EASTERN RECORD MFG. CO., New Jersey  
E.M.I. LTD., Australia  
E.M.I. RECORDS, England  
E.M.I. EUROPA, Germany  
E.M.I. RECORDS, Malaysia  
FARADAY INC., Michigan  
FINEBILT MFG., California  
FINE RECORDING, New York  
GENERAL RECORDED TAPE, California  
GAUSS ELECTROPHYSICS, California  
GENERAL CASSETTE CORP., Arizona  
GENERAL MAGNETIC AND  
ELECTRONICS, England  
GENERAL TAPE PRODUCTS, New Jersey  
GLOBE RECORDING STUDIO, Tennessee  
GOTHAM RECORDING, New York  
GRABACONES-ANTOR, Venezuela  
HIS MASTER'S VOICE (N.Z.) LTD.,  
New Zealand  
HITACHI MAXELL LTD., Japan  
IBEROFON, S.A., Spain  
IMPERIAL INTERNATIONAL LEARNING,  
Illinois  
INDUSTRIAL AUDIO/FILM SERVICES, Illinois  
INTEGRADORA ELECTRONICA, S.A., Chile  
INTERNATIONAL COMPUTER PRODUCTS,  
Texas  
ITP TONBAND-PRODUKTIONS-KG,  
Germany  
KOLSTER IBERICA, S.A., Spain  
K-TRONIC INC., California  
LIBERTY/UA TAPE DUPLICATING, Nebraska  
LODESTONE COMPANY, California

LONDON RECORDS OF CANADA, Canada  
MANLEY VAN NIEKERK STUDIOS,  
South Africa  
McCUNE STUDIOS, California  
MEMOREX CORP., California  
META-COM INC., Minnesota  
MAGNETIC VIDEO CORP., Michigan  
METRONOME MUSIC A/S, Denmark  
3M COMPANY, Canada  
3M COMPANY, Minnesota  
MONARCH RECORDS, California  
MOOD MUSIC ELECTRONICS, France  
MORNINGSTAR CORPORATION OF  
MAINE, Maine  
MUSIC CARRIERS (N.Z.) LTD., New Zealand  
NATIONAL RECORDING, New York  
NATIONAL TAPE SERVICE, New Jersey  
NIPPON COLUMBIA CO LTD., Japan  
NORTHERN ILLINOIS UNIVERSITY, Illinois  
OLIMS CHEMICALS PTY LTD., Australia  
ORFEON VIDEOVOX, S.A., Mexico  
P & P STUDIOS INC., Connecticut  
PERUTZ AGFA PHOTOWERKE, Germany  
PHILIPS ELECTRIC, New Zealand  
N.V. PHILIPS PHONOGRAPHISCHE  
INDUSTRIE, Holland  
PHONOGRAPHIC INDUSTRIES PRIVATE,  
Singapore  
PLASTIC PRODUCTS, Tennessee  
POLYDOR, S.A., Venezuela  
PRECISION TAPES LTD., England  
PREFERRED SOUNDS, New York  
PROFESSIONAL SOUND INC.,  
Massachusetts  
QUALITY RECORDS LTD., Canada  
RADIANT CASSETTE CARTRIDGE, New York  
RCA OF AUSTRALIA PTY LTD., Australia  
RECORD CORP. OF NEW ENGLAND,  
Massachusetts  
RODEL AUDIO SERVICES, Washington, D.C.  
ROZINANTE INC., Michigan  
SERVI-SOUND INC., New York  
SICAMERICANA, S.A., Argentina  
SUCCESS MOTIVATION INSTITUTE INC.,  
Texas  
SOCIETE BELGO-ISRAELIENNE  
D'ELECTRONIQUE, Israel  
SOUNDINGS, INC., Argentina  
STEREODYNE INC., Michigan  
STEREO JAUBERT, France  
STEREO JET DE MEXICO, S.A., Mexico  
SUPERSCOPE, California  
TAPECAR GRAVACOES, Brazil  
TECHNISONIC STUDIOS INC., Missouri  
TEXAS ELECTRONICS, Texas  
TRIDENT TAPE SERVICES, England  
ULVEX AB, Sweden  
UNION RECORDS INDUSTRIES, Malaysia  
UNITED CONTROL, California  
UNIVERSAL RECORDING & DISTRIBUTING  
CORP., Florida  
VIDEX INC., Florida  
VOGUE PRODUCTIONS INTERNATIONALES  
PHONOGRAPHIQUES, France  
WAHSHING CO., Washington  
WERNER WEBER, Switzerland